# COMPREHENSIVE ENVIRONMENTAL EDUCATION IMPLEMENTATION PLAN FOR INDIANA

Developed by;

The Indiana Conservation Education Working Group 1996

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#### PURPOSE OF PLAN

Growth in diversity of environmental education expertise and materials is one of Indiana's strengths; however, such diversity can create confusion, duplication of efforts and problems in quality assurance. With the explosion of information that is occuring, it is important that educators be able to process and analyze what is out there--separate the accurate from the inaccurate, the beneficial from the useless. The need for open, thorough communication and coordination of efforts, particularly among different agencies and organizations, is critical.

Growing demand for environmental education is coming at a time when educational resources--both human and financial--are being stretched substantially. The Indiana Conservation Education (ICE) working group recognized a need for a statewide plan of action for environmental education. This plan is designed to improve communications and coordination of environmental education efforts throughout Indiana, in both public and private sectors.

Proper stewardship of our natural resources depends upon an environmentally literate public. Only through education will this literacy be developed, allowing for informed decisions to be made and responsible actions to be taken. This plan proposes to bring together members of the public and private sectors, researchers, conservationists, and educators from every level and discipline to set a higher priority for environmental education and to enhance the quality of education for all Indiana students.

#### Examination Of Needs And Potential Benefits

As can be seen from the following actual examples, the costs of environmental ignorance or negligence to businesses, individuals and the natural environment can be staggering:

Case study #1--A coal company and its bonding company both went bankrupt, leaving hundreds of acres of mine land unreclaimed for several years while state and federal authorities tried to work out a solution. The land was eventually reclaimed using fees from current mining companies to finance the expense. In the end, these costs were past on to consumers.

Case study \*2--An individual purchased some land to build his dream home. Only after investing thousands of dollars on the property and house plans did he discover that the land lies in a flood plain. He now must bear the cost of flood insurance and live with the risk of having his home potentially washed away.

Case study #3--The bald eagle, once a breeding resident of Indiana, was absent until reintroduced in the 1980's by the Department of Natural Resources. Just when one of the introduced birds gave indications that it might adapt to its new home, it was found dead with an arrow through it. Aside from the financial cost involved in bringing the eagle to Indiana and reintroducing it, the possibility of establishing a breeding population of eagles in that area of the state was greatly reduced because of this incident.

According to figures from the Indiana Department of Environmental Management, from 1990-94 alone, more than \$1,150,000 was collected for violations of clean water laws in Indiana. In addition, more than \$5,000,000 was levied in fines for air quality violations, and almost \$3,000,000 of penalties for the dumping of hazardous waste.

Implementation of this plan will acrue many long-term benefits that will lead to the enhancement of Indiana's natural resources. The plan will enable educators to deliver research-based educational programs that will eventually contribute to the shaping of local, state and national initiatives to address environmental issues. The long-term benefits that will result from a better informed, more critically thinking public are, indeed, significant.

While implementing this plan requires some investment, this will be more than offset by savings in efficiency and improved service to Indiana educators and citizens. A more environmentally responsible future citizenry should also result in savings to the state by lessening the need for regulation. Providing a common location to gather resources and people would result in better coordination of efforts and improved efficiency. Educators will no longer have to search through several agencies before finding the expertise they need; this office will provide educators the "one stop shopping" which does not currently exist in Indiana. It would also serve as a statewide clearinghouse for environmental education materials, a need that has long been recognized by educators. A central clearinghouse would result in financial savings for the state by identifying existing materials that fill a need, saving the cost of developing and printing new materials. Clearinghouse review would also identify materials which meet standards of quality established by the North American Association for Environmental Education, enabling local school corporations to make better use of their limited funds.

#### **DEFINITIONS**

There are strong networks of educators and resource specialists within Indiana who are involved in environmental and conservation education. The diversity of professionals in these fields and curricular materials available to educators have never been greater. Demand for these services and materials has also increased significantly.

The terms "conservation education" and "environmental education" are treated differently by some people and used synonymously by others. For the purposes of this document, the following definitions will be used:

- "Environmental education" refers to a long-term, often curriculum-based process which involves critical thinking skills, understanding of natural and cultural history and ecological processes, awareness of organizations and issues impacting ecological systems, and personal and/or organized action to prevent ecological degradation and to improve natural resource management.
- "Conservation education" is, relative to "environmental education", direct-application education designed to address specific conservation problems or issues through 1) establishing educational goals, 2) defining target audiences, 3) developing strategies for communicating the messages, and 4) evaluating efforts in relation to attaining conservation goals.

"Environmental education" may be accomplished through any subject area, whereas "conservation education" has historically most often been addressed through the sciences. While both are essential for developing an environmentally literate citizenry, this document presents a statewide plan for "environmental education".

The following are other terms used within this document that may be unfamiliar to the reader:

- "cooperative learning" students working in small teams to accomplish academic tasks, while at the same time developing social skills.
- "in-service training"- any professional development provided to someone who is currently teaching, regardless of whether compensation is provided.
- "integration of environmental education"-the infusion of concepts related to the natural environment within an existing curriculum, as opposed to being introduced as a separate subject area; example: if teaching a math unit on grouping, have students group rocks on the playground according to the basic rock types.
- "interdisciplinary approach" refers to the teaching of a concept within the context of more than one subject area; example: if teaching the concept that rocks can be used as a building material, have students determine how many rocks it would take to construct a given wall (math), which type of rock would be the most durable (science), where that type of rock is most abundant (geography), and the cost of obtaining and transporting enough material to build the project (economics).
- "pre-service training" any professional development provided to someone who is planning to be a teacher, regardless of whether compensation is provided.
- "thematic approach" refers to the teaching of many concepts over an extended period of time, but relating all of the concepts to a central theme; example: if the theme for the month is "rocks", students may learn the basic categories of rocks and specifically identify locally common rocks (science), determine the volume and mass of various rocks and determine the percentage of a given rock type found on the playground (math), study geologic maps to locate mineral deposits and relate those minerals to that area's industry (social studies), and write a first person essay from the perspective of a rock about its formation and existence (language arts).

While the above teaching techniques are defined separately, they are certainly not mutually exclusive. Educators often combine some of them in their teaching.

#### Indiana Conservation Education (ICE) Working Group

# **Background Information And Participants**

Since 1983, ICE has served as a statewide forum for public and private organizations interested in conservation education to meet, discuss their efforts and cooperate in a spirit of sharing. The long range goal of the group is to see conservation education infused as a permanent feature of education in Indiana. ICE working group members have collaborated on numerous projects throughout the years. They continue to meet on a regular basis to keep each other informed about their many activities, and to work together on projects when appropriate. In recent years the group's scope has broadened to include promoting environmental education throughout the state.

There have been many agencies, organizations and individuals who have contributed their expertise and support to the ICE working group. There are currently 67 people on ICE's mailing list, representing 14 public agencies, 14 private organizations, 3 universities and 9 private individuals. The following people were involved in the many drafts and revisions of this implementation plan:

Sam Carman, Indiana Department of Natural Resouces, Division of Forestry (Committee Chair)

Kevin Beardmore, Indiana Department of Education

Bonni Browning, Indiana Department of Natural Resources, Division of Forestry

Kirsten Buhls, private environmental education consultant

Brian Cohee, Indiana Department of Environmental Management

Susan Fowler, Vanderburgh County Soil and Water Conservation District/private environmental education consultant

Warren Gartner, Indiana Department of Natural Resources, Division of Fish & Wildlife

Dr. John Graveel, Purdue University, Department of Agronomy

Jim Hauck, West Central Indiana Solid Waste Management District

Dr. Clyde Hibbs, Ball State University, Department of Natural Resources and Environmental Management

Margaret Lincoln, Bradford Woods

Georgia O'Malley, Indiana Department of Natural Resources, Division of Outdoor Recreation

Jill Schultz, Department of Environmental Management

Susan Schultz, Greenfield Central Community Schools

Joe Wright, Indiana Department of Education, Office of Program Development

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#### DETERMINATION OF NEEDS

The individuals involved in drafting this plan all have experience in environmental education and in working directly with classroom teachers and students. However, it was the consensus of the group that no assumptions be made concerning the needs of Indiana educators. Therefore, a statewide needs assessment (see appendix), funded through a U.S. Forest Service Natural Resource Conservation Education grant was conducted to determine the following:

- 1. the extent to which Indiana educators currently integrate environmental education into their teaching;
- what materials, programs and teaching techniques are used by those educators who integrate environmental education into their teaching;
- 3. what barriers are perceived by educators who do not integrate environmental education into their teaching;
- 4. what materials and services do educators perceive as being most needed.

The needs assessment was developed by the Indiana Conservation Education working group and pilot tested with 30 educators representing a diversity of subject areas and grade level. Once tested and refined, the instrument was then sent to 1,500 randomly selected K-12 educators in public and private schools throughout Indiana. There were 449 surveys completed and returned, representing a response rate of 29.9%, more than adequate for statistical purposes. A detailed analysis of that data was done through Purdue University, and general conclusions drawn. Most significant among those conclusions were the following:

- 1. Nearly 70% of Indiana teachers do not integrate environmental education into their teaching.
- 2. The primary perceived barrier to integrating environmental education into the curriculum is lack of time in the school day.
- 3. Among teachers who do not integrate environmental education into their teaching there is a strong feeling that it is not relevant to what they teach.
- 4. About 60% of Indiana teachers are unfamiliar with most environmental education curriculum supplements.
- 5. Integration of environmental education is more common at the elementary and middle school levels.

A complete summary of conclusions from the needs assessment is included in Appendix 2. These conclusions were used as a framework in which to develop recommendations contained in this plan.

#### DEVELOPMENT OF RECOMMENDED RESPONSIBILITIES

Successful implementation of this plan will depend upon the active support and participation of several key state and private agencies and organizations. Recommendations are directed to a variety of organizations, some of whom are already engaged in, or supportive of, environmental education. Successful implementation of this plan will depend upon the commitment of those organizations and agencies, and the effectiveness of partnerships among them. While some recommendations made will require funding to implement, many can be accomplished through more efficient or creative uses of existing resources and personnel.



#### Specific Organization Responsibilities

# Organization: Indiana Department of Education (DOE)

The **Department of Education** is responsible for implementing the rules and regulations established by the State Board of Education, and for providing assistance to Indiana's public and private elementary and secondary schools. This department provides thousands of Indiana educators with conservation and environmental education materials and provides in-service training on a wide range of topics.

#### Identified need: STUDENT DEVELOPMENT

- 1-DOE. develop a continuum of learner expectations from elementary through high school, beginning with awareness of the natural environment and the introduction of basic ecological principles, followed by the understanding of ecological interactions and human environmental impacts, and leading to the knowledge and skills to take responsible action
- 2-DOE. working cooperatively with a college or university and the Departments of Natural Resources and Environmental Management, develop an instrument to assess student knowledge and attitudes about the environment and conduct this assessment every five years
- 3-DOE. develop guidelines for involving students in environmental action projects (e.g. community recycling, tree planting, monitoring local stream water quality, etc.)

# Identified need: STAFF DEVELOPMENT AND CERTIFICATION/SCHOOL EVALUATION

- 4-DOE. integrate environmental education standards into Performance Based Assessment (PBA), School Assessment and Northcentral Evaluation recommendations, to include monetary incentives based on performance
- 5-DOE. with the environmental education office, cooperatively develop mechanisms and criteria for evaluating the effectiveness of school district environmental education programs
- 6-DOE. working cooperatively with other agencies, organizations, businesses and industries, offer preservice and in-service workshops to K-12 educators on techniques of integrating EE, specific to each subject area
- 7-DOE. provide in-service training to increase science and technology literacy and confidence
- 8-DOE. present environmental education programs at the state association meetings of various subject areas (e.g. Hoosier Association of Science Teachers, Indiana Social Studies Teachers Assocation, etc.)
- 9-DOE. maintain an environmental education database through the Indiana Department of Education's IDEAnet to include technical information from state and private environmental entities, sources of funding and resources, on-line professional help, and listings of training opportunities throughout the state, in cooperation with the Office of Environmental Education.

#### Identified need: CURRICULUM DEVELOPMENT

- 10-DOE. integrate environmental education into existing curriculum guidelines, not as a separate discipline, but as an interdisciplinary instructional strategy that augments all curricula
- 11-DOE. develop environmental education materials to closely link science and language arts
- 12-DOE. include school site conservation activities and outdoor lab development in the curriculum guide lines to enhance environmental education in all grade levels and subjects
- 13-DOE. actively involve the Indiana Conservation Education working group, Environmental Education Association of Indiana and other appropriate organizations in the development, implementation and assessment of environmental education curricula

#### Identified need: ADMINISTRATIVE ISSUES

- 14-DOE. support/encourage block scheduling, other alternatives to make time in school day more flexible
- 15-DOE. explore and implement ways of reducing the non-teaching duties of educators so they can have more time to focus on curricular matters
- 16-DOE. support/encourage creative methods of staffing for environmental education programs (e.g. system EE coordinators, summer school environmental education staff, staffing with resource professionals, volunteers, etc.)
- 17-DOE. assist in establishing regional environmental education resource centers, possibly to be housed in regional teacher service centers or colleges and universities
  - 18-DOE. maintain at least one Environmental Education Consultant, to be housed within the environmental education office, to bring expertise to that office regarding state curriculum guidelines and proficiencies, and to provide a link with the Department of Education
  - 19-DOE. work cooperatively with colleges and universities to disseminate environmental education research results in a clear, concise manner to Indiana educators and to the state environmental education office
  - 20-DOE. work cooperatively with teacher training institutions to encourage environmental education mentorships for student teachers and first year teachers
  - 21-DOE. work cooperatively with teacher training institutions to encourage environmental education mentorships for student teachers and first year teachers
- 22-DOE. pursue legislative funding for the Office of Performance Based Assessment to provide monetary incentives to schools which demonstrate exemplary integration of environmental education
- 23-DOE. provide staffing and financial support to develop and maintain a consolidated environmental education office (see description in Appendix 3)

## Organization: Indiana Professional Standards Board (PSB)

The **Indiana Professional Standards Board** is an autonomous agency which was established by legislative action in 1992. The Board is responsible for setting standards for professional education programs, teacher licensing and testing, teacher induction, and continuing education.

#### Identified need: STAFF DEVELOPMENT & LICENSURE

- 1-PSB. modify current teaching certification requirements to include a demonstrated mastery of environmental education methods for all graduating teachers
- 2-PSB. integrate specific questions on basic ecological principles, environmental studies and environ mental education techniques into any Indiana state teachers licensure or relicensure exam
- 3-PSB. promote the licensure of teachers in conservation and environmental studies
- L-PSB. working with colleges, universities and the environmental education office, establish guide lines for licensing existing educators with an environmental education endorsement based upon demonstrated professional practices and accomplishments in environmental education
- 5-PSB. require school adminstrators to attend at least one environmental education workshop every five years
- 6-PSB. work cooperatively with colleges and universities to establish environmental education teaching skills requirements for teacher licensure

#### Organization: Department of Natural Resources (DNR)

The **Department of Natural Resources**' mission is to protect, enhance, preserve and wisely use natural, cultural and recreational resources for the benefit of Indiana's citizens through professional leadership, management and education.

#### Identified need: STUDENT DEVELOPMENT

- 1-DNR. in cooperation with the Departments of Education and Environmental Management, develop guidelines for involving students in environmental action projects
- 2-DNR. expand experiential education programs for high school and college students to provide career opportunity awareness

#### *Identified need*: STAFF DEVELOPMENT

- 3-DNR. working cooperatively with other agencies and organizations, offer pre-service and in-service training to K-12 educators on techniques of integrating EE, specific to each subject area
- 4-DNR. provide pre- and in-service training relating natural resource conservation to each subject area
- 5-DNR. offer natural resource management training sessions for teachers at their school sites
- 6-DNR. present environmental education programs at the state association meetings of various subject areas (e.g. Hoosier Association of Science Teachers, Indiana Social Studies Teachers Association, etc.)
- 7-DNR. encourage and assist in the development and use of outdoor labs on school sites
- 8-DNR. include an environmental education program within the Department's strategic plan

#### Identified need: CURRICULUM

- 9-DNR. in cooperation with classroom teachers and administrators, develop sequential interdisciplinary units for four to six outdoor experiences throughout each school year
- 10-DNR. develop a simple, straightforward Indiana natural resources guide to be used as a reference for each subject area which incorporates natural resource use and management concepts
- 11-DNR. develop educational resource travelling kits for use by educators to be made available regionally

#### *Identified need*: ADMINISTRATIVE ISSUES

- 12-DNR. encourage partnerships between educational institutions, public lands and private entities to identify where projects might be initiated
- 13-DNR. assist in establishing regional environmental education resource centers, possibly to be located in regional teacher service centers or colleges and universities
- 14-DNR. provide staffing and financial support to develop and maintain a consolidated environmental education office.(see description in Appendix 3)

#### Organization: Department of Environmental Management (DEM)

The **Department of Environmental Management** is responsible for establishing, monitoring and enforcing regulations regarding environmental quality in Indiana. This department's efforts in pollution prevention have led to the development of several educational programs dealing with solid waste disposal and pollution prevention, as well as a grant program for the training of educators.

#### *Identified need*: STUDENT DEVELOPMENT

- 1-DEM. in cooperation with the Departments of Education and Natural Resources, develop guidelines for involving students in environmental action projects
- 2-DEM. provide career awareness for high school and college students

#### Identified need: STAFF DEVELOPMENT

- 3-DEM. working cooperatively with solid waste management districts and other units of local government, offer funding for pre-service and in-service training of educators
- 4-DEM. encourage solid waste management districts to present environmental education programs at the state association meetings of various subject areas (e.g. Hoosier Association of Science Teachers, Indiana Social Studies Teachers Association, etc.)

#### Identified need: CURRICULUM

- 5-DEM. encourage solid waste management districts and other units of local government to work with classroom teachers and administrators in developing sequential interdisciplinary units related to school site and community solid waste disposal
- 6-DEM. encourage solid waste management districts and other units of local government to develop fact sheets appropriate for each subject area which incorporate solid waste disposal issues and management concepts
- 7-DEM. encourage solid waste management districts and other units of local government to develop educational resource travelling kits for use by educators to be made available at regional environmental education centers, state properties, offices of solid waste districts and other public sites

#### Identified need: ADMINISTRATIVE ISSUES

8-DEM. provide information and expertise to regional environmental education resource centers

9-DEM. provide information and expertise to the consolidated environmental education office. (see description in Appendix 3)

# Organization: Natural Resources Conservation Service (NRC)

The Natural Resources Conservation Service is a USDA agency that works with the public and private sectors through 92 Soil and Water Conservation Districts in Indiana to conserve and protect natural resources on private lands. The NRCS provides technical information and conservation assistance to landusers and educators at all levels.

#### Identified need: STAFF DEVELOPMENT

1-NRC. working cooperatively with other agencies, facilitate natural resources conservation education through train-the-trainer workshops and teacher training

2-NRC. facilitate the exchange of conservation education ideas, resources, materials and techniques among NRCS and DNR-Division of Soil Conservation employees and Soil and Water Conservation District educators

3-NRC. provide support and resource materials for natural resources and environmental conservation education

#### Identified need: ADMINISTRATIVE ISSUES

4-NRC. provide leadership in coordinating and partnering with other organizations to avoid duplication and enhance efforts in youth conservation education

5-NRC. work with the private sector to provide sound natural resources conservation facts for their education materials, publications and youth activity guides

6-NRC. work with the Department of Education, Department of Natural Resources, schools, colleges, local organizations, etc. in formulating and implementing development of informational and educational materials pertaining to soil and water conservation for their use

7-NRC. work with Departments of Education and Natural Resources, Soil and Water Conservation Districts and others to strengthen existing conservation education concepts and programs

# Organization: Soil and Water Conservation Districts

The **Soil and Water Conservation Districts** are units of state government resonsible for soil and water conservation programs within county boundaries. Each district provides a means for all interested people in a county to work together for natural resource conservation and development.

#### Identified need: STUDENT DEVELOPMENT

1-SWC. in cooperation with other agencies, develop programs for involving students in conservation education stewardship

2-SWC. provide opportunities for conservation field days, water testing, outdoor lab development and other valuable field experiences

3-SWC. provide and distribute conservation and environmental education materials, information on upcoming events and other conservation contacts

4-SWC. host conservation contests (i.e. Envirothon, Conservation Speech Contest, etc.) and assist with science fairs

- 5-SWC. assist with the development of "Pathway To Water Quality" exhibit at the Indiana State Fairgrounds for both student and adult education
- 6-SWC. provide actual classroom training in natural resources conservation education to all ages

#### *Identified need*: STAFF DEVELOPMENT

- 7-SWC. working cooperatively with other agencies and organizations, conduct conservation education training for educators
- 8-SWC. promote and work cooperatively with other agencies conducting conservation and environmental education training workshops for educators
- 9-SWC. encourage and assist in the development and use of outdoor classrooms on school grounds

#### Identified need: CURRICULUM

- 10-SWC assist schools in integrating natural resources conservation and environmental education into their programs or building a curriculum around it
- 11-SWC.provide conservation units and activities for use in curricular development

#### Identified need: ADMINSTRATIVE ISSUES

- 12-SWC.encourage partnerships between educational institutions, public agencies, and private entities to initiate needed conservation education projects
- 13-SWC.endorse natural resoures conservation education and environmental education as priorities 14-SWC.identify appropriate natural resources conservation materials for use by educators

#### Organization: State Board of Education (SBE)

The **State Board Of Education** establishes and maintains rules and regulations which govern Indiana public schools. All policies and programs of the Department of Education must be authorized by the the State Board of Education.

#### Identified need: ADMINISTRATIVE ISSUES

endorse environmental education as a priority and communicate this to all Indiana school superintendents and school boards

# Organization: Private Sector (PRI)

The **Private Sector** includes environmental, conservation, cultural, historical, religious, agricultural, youth and other organizations, as well as business and industry.

#### *Identified need*: STUDENT DEVELOPMENT

- 1-PRI. establish an experiential education program for middle school, high school and college students to provide career opportunity awareness and/or serve as a "laboratory" to provide practical applications of environmental stewardship
- 2-PRI. establish and/or support opportunities that promote environmental education through social experiences

#### Identified need: CURRICULUM

3-PRI. work cooperatively with the state environmental education office to provide support and input in curriculum design and development which is consistent with each organization's mission

#### Identified need: ADMINISTRATIVE ISSUES

- 4-PRI. participate in environmental education activities by providing educationally sound services to the formal education system and by serving as an integral link to those outside the formal education system
- 5-PRI. examine their respective roles in environmental education and develop written plans of action
- 6-PRI. encourage business partnerships and sponsorships for environmental education (i.e. technical or financial assistance, donations or use of land or other resources, etc.)
- 7-PRI. encourage partnerships between schools, public lands and private entities to identify where projects might be initiated
- 8-PRI. assist in establishing regional environmental education resource centers, possibly to be housed in regional teacher service centers or colleges and universities
- 9-PRI. work cooperatively with the state environmental education office to provide competitive grants to schools for environmental education (i.e. outdoor lab development, student field trips, staff training, etc.)

# Organization: Colleges & Universities (UNI)

**Colleges and universities** refer to all institutions of post-secondary education that are responsible for the training and preparation of teachers.

#### Identified need: STAFF LICENSURE

- 1-UNI. work cooperatively with the Indiana Professional Standards Board to develop course offerings leading to a demonstrated mastery of environmental education methods for all graduating teachers
- 2-UNI. work cooperatively with the Indiana Professional Standards Board to establish environmental education teaching skills requirements for teacher licensure
- 3-UNI. working with the environmental education office and the Indiana Professional Standards Board, establish guidelines for licensing existing educators with an environmental education endorsement based upon demonatrated professional practices and accomplishments in environmental education

#### Identified need: STAFF DEVELOPMENT

- 4-UNI. provide pre-service training to encourage an interdisciplinary approach to teaching science
- 5-UNI. conduct pre-service training in teaching methods classes focusing on integration techniques in environmental education
- 6-UNI. increase pre-service introduction of environmental education curricula

#### Identified need: CURRICULUM

- 7-UNI. incorporate environmental education into all undergraduate and graduate education degree programs, including the possibility of enrolling in environmental studies course to meet general education requirements
- 8-UNI. conduct a feasibility study on offering interdisciplinary degree programs or minors in environmental education at the undergraduate and graduate levels

- 9-UNI. encourage and implement campus-wide environmental education and resource conservation programs to increase student awareness and complement environmental education taught in all education degree programs
- 10-UNI. work cooperatively with the Department of Education to disseminate environmental education research results in a clear, concise manner to Indiana educators
- 11-UNI. encourage the development of college or university owned land areas for environmental education
- 12-UNI. develop a pilot environmental education project at a selected university to serve as a model for other colleges and universities

#### Identified need: ADMINISTRATIVE ISSUES

- 13-UNI. offer courses for the public that contribute to thorough, meaningful environmental awareness, including public workshops, forums and seminars, short courses and instructional programs targeted to the non-traditional audience
- 14-UNI. form cooperative research ventures in environmental education among colleges and universities, appropriate public agencies and private organizations
- 15-UNI. assist in establishing regional environmental education resource centers

# Organization: Environmental Education Office (proposed) (EEO)

A common **environmental education office** does not currently exist, but its creation is proposed as a cornerstone of this plan. It must be emphasized that this office does not imply the creation of a new governmental agency; it is simply a consolidation of existing positions into one central location. A detailed description of this proposed office can be found in Appendix 3.

#### Identified need: STUDENT DEVELOPMENT

- 1-EEO. develop a continuum of recommended learner expectations from elementary through high school, beginning with awareness of the natural environment and the introduction of basic ecological principles (elementary), followed by understanding of ecological interactions and human environmental impacts (middle), and finally the knowledge and skills to take responsible action (high), applied to real-world situations
  - 2-EEO. conduct an annual Indiana Youth Summit on environmental education to encourage positive student action and sharing of successful models
  - 3-EEO.promote the formation of a statewide youth environmental education organization, establishing chapters in public and private elementary, secondary and postsecondary schools, to develop future leadership in environmental education

#### Identified need: STAFF DEVELOPMENT/SCHOOL EVALUATION

- 4-EEO. with the Indiana Department of Education, cooperatively develop mechanisms and criteria for evaluating the effectiveness of school district environmental education programs
- 5-EEO. working with colleges, universities and the Indiana Professional Standards Board, establish guidelines for certifying existing educators with an environmental education endorsement based upon demonatrated professional practices and accomplishments in environmental education
- 6-EEO. work cooperatively with the Indiana Professional Standards Board to ensure that all in-service training offerings meet established continuing education guidelines whenever possible

- 7-EEO. conduct and sponsor an annual teachers' academy on environmental education. This academy would not be oriented toward technical topics of natural resources (such as the Department of Natural Resources' Conservation Camp for teachers), but would focus on integration techniques for each subject area and grade level.
- 8-EEO. develop in-service workshops focusing on integrating environmental concepts that are not commonly addressed currently (see Appendix 2, "Ranking of topics as they are addressed in the curriculum")
- 9-EEO. in cooperation with colleges and universities, provide pre-service training to encourage an interdisciplinary approach to teaching science
- 10-EEO. offer brief school-based workshops to develop techniques of using the outdoors in teaching various subject areas
- 11-EEO. provide in-service training to increase science and technology literacy and confidence
- 12-EEO. provide environmental education in-service to school principals and other administrators
- 13-EEO. work cooperatively with teacher training institutions and the Indiana Professional Standards Board to encourage environmental education mentorships for student teachers and first year teachers
- 14-EEO. offer grant writing and other fund raising training to educators and administrators
- 15-EEO. provide programs, workshops and short courses designed to increase the knowledge of natural resource professionals in the area of environmental education

#### Identified need: CURRICULUM

- 16-EEO. develop and maintain a database of appropriate funding sources, resources, programs, speakers, and curricular materials for formal and non-formal environmental education programs, to be made accessable through regional environmental education centers
- 17-EEO. develop sequential interdisciplinary units for four to six outdoor experiences during each school year
- 18-EEO. coordinate integrating school programs with technical research projects
- 19-EEO. evaluate and integrate existing environmental education programs to eliminate duplication and strengthen successful efforts

#### *Identified need*: ADMINISTRATIVE ISSUES

- 20-EEO. develop regional environmental education resource centers throughout Indiana, with an immediate goal of five; add new sites as funding and resources become available. The planning, funding, organization and management of these regional centers would be carried out through committees composed of representatives from local educational institutions and public and private organizations, who would explore diverse and creative means of providing environmental education materials and programs (e.g. bookmobiles, tourism offices, computer networks, etc.)
- 21-EEO. working cooperatively with the State Department of Education, develop mechanisms and criteria for evaluating the effectiveness of school districts' environmental education programs
- 22-EEO. work cooperatively with the private sector to provide competitive grants to schools for environmental education (i.e. outdoor lab development, student field trips, staff training, etc.)
- 23-EEO. work cooperatively with private sector to identify needs and partnership opportunities

# **General Recommendations For All Organizations (ALL)**

#### Identified need: STUDENT DEVELOPMENT

1-ALL. encourage the incorporation of environmental education into statewide youth events (e.g. Boys and Girls State, 4-H, Youth As Resources, Junior Achievement, etc.) and local student organizations (e.g. student coucil, school clubs, etc.)

#### *Identified need*: STAFF DEVELOPMENT

- 2-ALL. encourage and facilitate teacher-to-teacher workshops to share successful environmental education teaching techniques
- 3-ALL. conduct in-service training in environmental education to encompass basic principles of ecology and other environmental sciences, methods of teaching environmental issues and methods of integrating environmental studies into existing programs. Provisions should be included for school district or university course credit, or other mechanisms of participant support

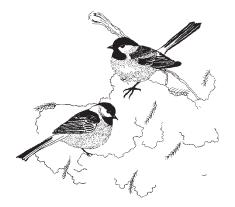
#### *Identified need*: CURRICULUM

- 4-ALL. facilitate and strongly encourage more extensive integration of environmental concepts in textbooks
- 5-ALL. develop environmental education materials that closely link science and language arts
- 6-ALL. introduce environmental education curricular supplements under the title of a given subject area instead of as "environmental education"
- 7-ALL. approach various subject areas through curricular supplements using popular environmental topics (as indicated in statewide needs assessment)
- 8-ALL. increase educator awareness of integrated curricular supplements
- 8-ALL. increase educator awareness of low or no cost curricular supplements
- 9-ALL. assist in the development of a Listing of Available Programs (e.g. speakers, materials, displays, A-V presentations, etc.)

#### Identified need: ADMINISTRATIVE ISSUES

- 10-ALL. support/encourage creative methods of staffing and use of existing educational and public and private sector professional resources for environmental education (e.g. system environmental education coordinators, staffing with resource professionals, volunteers, partnerships with other schools, etc.) and the employment of personnel who are certified in environmental studies
- 11-ALL. encourage all educational institutions, agencies and organizations to develop creative approaches to environmental education
- 12-ALL. assist schools in making more efficient use of environmental education funding, as well as seeking out additional funding sources
- 13-ALL. encourage publication of articles on environmental education in a variety of newsletters and magazines
- 14-ALL. work cooperatively with libraries to increase publication and distribution of literature introducing environmental education curricular supplements
- 15-ALL. encourage past environmental education workshop participants to assist in promoting environmental education curricular supplements

- 16-ALL. create a comprehensive marketing plan for environmental education
- 17-ALL. make available a list of existing recognition and awards programs related to environmental education or action
- 18-ALL. encourage coordination and cooperation among groups offering recognition for environmental education
- 19-ALL. conduct an annual audit of operating procedures and eliminate existing or potential environmental hazards
- 20-ALL. work through state educator associations to encourage implementation of plan recommendations
- 21-ALL. encourage the Indiana State Legislature to provide funding to the Department of Education, Office of Performance Based Accreditation for monetary incentives to schools which demonstrate exemplary integration of environmental education
- 22-ALL. establish an environmental education foundation to generate and distribute financial support



#### Conclusion

Indiana has a proven track record in environmental education. Some of our educators and natural resource professionals working in the field of education have received national honors and recognition in recent years, and some programs developed in Indiana have been used as national models. But regardless of the accolades bestowed upon Hoosier educators in the past, the fact is that Indiana is losing ground with other states because we lack an overall plan to coordinate our efforts, and because environmental education has not been a state funding priority. We clearly have the talent and initiative to secure Indiana's place among the leaders in environmental education.

With implementation of this plan, Indiana will place itself on equal footing with many other states that have already taken this step. The educational benefits to be derived include enhanced opportunities for student experiential learning; increased in-service training for educators; more efficient use of state funding and resources; enhanced public-private partnerships; improved public service; and a more consistent, thorough and accountable delivery of curriculum to students. All of these lead to the ultimate benefit of a better informed citizenry capable of making responsible decisions.

# Appendix 1

# Teacher Survey— Environmental Education

1. How often do you use direct observation, in	doors or outdoors, to teach about the natural world?		
□ not at all	☐ 4 to 9 times each year		
☐ 3 times or less each year	☐ more than 9 times each year		
2. How often do you teach about natural resoureduce soil erosion?	rce use and management, such as learning how to plant trees to		
□ not at all	☐ 4 to 9 times each year		
☐ 3 times or less each year	☐ more than 9 times each year		
teach math skills?	a variety of subjects, such as measuring the height of a tree to		
□ not at all	☐ 4 to 9 times each year		
☐ 3 times or less each year	☐ more than 9 times each year		
4. How often do your students apply knowledg as students examining school waste and determ	e and skills toward improving an environmental problem, such ining options to reduce it?		
□ not at all	☐ 4 to 9 times each year		
☐ 3 times or less each year	3 times or less each year ☐ more than 9 times each year		

	appropriate box that describes your fervice training.	familiarity with e	ach of the following, and	d indicate if you have	
Completed 7	<u>Craining</u>	<u>Unfamiliar</u>	Somewhat familiar	<u>Using it</u>	
	Completing The Cycle				
	Energy, Economics & The Environment				
	Indiana's Water Riches				
	NatureScope				
	Project Learning Tree				
	Project WILD/Aquatic WILD				
	Ranger Rick/Big Backyard				
	The Outdoor Classroom				
	Wet And Wild Water				
Other (please specify)					
	nk three barriers that make it difficult ect only three; 1 = biggest barrier)	for you to integr	ate environmental educa	ation.	
liability concernslack of funding					
lack of	lack of personal interestclass size				
transportation problems		lack of personal knowledge			
lack of administrative support		lack of time in school day			
no natural environments readily available		environmental education not relevant to what I teach			
lack of support from fellow staff members		lack	lack of instructional materials		
inclusio	on of special needs children	Oth	er		

either within your own classroom or through a team teaching effort: This topic is covered: in one subject in two subjects (ex.-recycling minimally (ex.-recycling taught in math or not taught in several at all in science) and science) subjects Air resources **Endangered species** Energy Farming issues Forest resources Hazardous waste Mineral resources Natural area preservation Pesticides Population Recycling Solid waste Soil resources Water resources Wildlife resources 8. Which of these is most needed for you to further integrate environmental education into your teaching? (Both of these are important, but please select what you feel is currently most needed.) \_more supplemental curricular materials \_more in-service training Comments:\_\_\_\_ 9. Integrating environmental education into the existing curriculum should be (please circle only one): an option required recommended discouraged Comments:

7. Mark the appropriate box that describes how you integrate each of the following topics into your instruction,

Name of school corporation  Subject(s) you teach:  Cears of teaching experience  Name of school corporation  Subject(s) you teach:  Cears of teaching experience  Years at this school  Never Occasionally  Cooperative learning  Thematic approach  In what subject do you feel most confident?  (Please list only one)  Years at this school  Often  Often  Interdisciplinary approach	tal			
Other (please list)  Other (please list)  In what subject do you feel most confident? (Please list only one)  Years of teaching experience  Years at this school  Mark the appropriate box that describes your use of these teaching strategies:  Never Occasionally Often  Cooperative learning  Thematic approach				
In what subject do you feel most confident?  (Please list only one)  Years of teaching experience  Years at this school  Mark the appropriate box that describes your use of these teaching strategies:  Never  Occasionally  Often  Thematic approach				
(Please list only one)				
Mark the appropriate box that describes your use of these teaching strategies:  Never Occasionally Often  Cooperative learning □ □ □ □  Thematic approach □ □ □				
Mark the appropriate box that describes your use of these teaching strategies:  Never Occasionally Often  Cooperative learning  Thematic approach				
Never Occasionally Often  Cooperative learning  Thematic approach				
Never Occasionally Often  Cooperative learning  Thematic approach				
Cooperative learning   Thematic approach   Cooperative learning   Co				
Thematic approach				
	Cooperative learning $\square$ $\square$			
Interdisciplinary approach $\Box$				
PERSONAL DATA: This information is strictly confidential and will be used for statistical purposes only.				
☐ Male ☐ White ☐ Black				
☐ Female ☐ Hispanic ☐ American Indian ☐	Asian			

If you are interested in receiving a copy of the survey results, please return the enclosed card with your name and address CLEARLY PRINTED. Thank you for taking time to complete this survey. Please return to survey to:

EE Survey DNR-Division of Forestry 402 W. Washington, Rm. W296 Indianapolis, IN 46204

#### Environmental Education Teacher Survey General Conclusions

- 1. Nearly 70% of Indiana teachers do not integrate environmental education into their teaching.
- 2. The primary perceived barrier to integrating environmental education in the curriculum is lack of time in the school day.
- 3. Among teachers who integrate environmental education into their teaching, lack of funding is also considered a strong barrier.
- 4. Among teachers who do not integrate environmental education into their teaching, there is a strong feeling that it is not relevant to what they teach.
- 5. About 60% of Indiana teachers are unfamiliar with most environmental education curriculum supplements.
- 6. The environmental topics most frequently addressed (in descending order) are recycling, water resources, forest resources, energy, endangered species and wildlife resources.
- The environmental topics most frequently addressed through an interdisciplinary approach (in descending order) are recycling, endangered species, wildlife resources, energy, population and forest resources.
- 8. Most teachers feel that integration of environmental education should be recommended but not required.
- 9. Integration of environmental education is more common at the elementary and middle school levels.
- 10. Cooperative learning is a technique employed more often by teachers who integrate environmental education into their instruction than by those who do not.
- 11. Interdisciplinary teaching is a technique employed more often by teachers who integrate environmental education into their instruction than by those who do not.
- 12. Thematic teaching is a technique employed more often by teachers who integrate environmental education into their instruction than by those who do not.
- 13. There is no significant difference in race, years of teaching experience or gender of teachers who integrate environmental education into their instruction and those who do not.
- 14. Teachers who integrate environmental education into their teaching feel most confident in the subject areas of language arts and science; teachers who do not integrate environmental education into their teaching feel most confident in language arts, with a low confidence level in the area of science.
- 15. Science teachers, middle school level teachers, and teachers who use an interdisciplinary teaching approach are more likely to integrate environmental education into their teaching.
- 16. Most teachers use direct observation to teach about the natural world 4 or more times each year.
- 17. Most teachers do not teach about natural resource use and management more than 3 times each year.
- 18. Most teachers do not use the outdoors to teach a variety of subjects more than 3 times each year.
- 19. Most teachers do not involve their students in applying knowledge and skills toward improving an environmental problem more than 3 times per year.
- 20. The average respondent has 17 years of teaching experience, 12 of which is at their current school.

# Familiarity with various environmental education curriculum supplements:

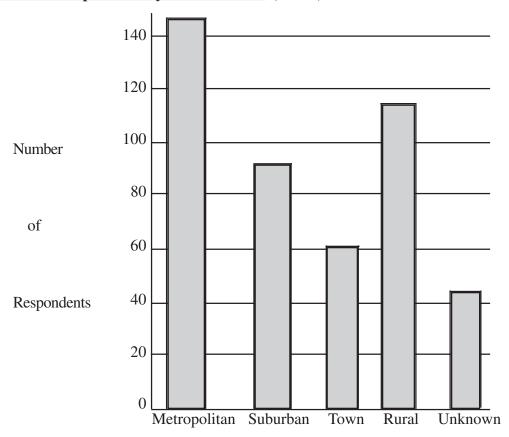
(all numbers are %. Do not total 100 because some did not respond.)

Program	Completed training	Unfamiliar	Somewhat familiar	Using it
Completing the Cycle	1.3	70.2	19.4	2.9
Energy, Economics & the Environment	2.7	58.4	27.2	6.5
Indiana's Water Riches	.9	73.5	16.9	2.2
NatureScope	2.2	74.6	12.0	5.8
Project Learning Tree	9.8	58.6	21.4	12.5
Project WILD & Aquatic WILD	9.8	57.0	22.5	12.7
Ranger Rick/Big Backyard	4.5	42.5	41.0	11.1
The Outdoor Classroom	n 2.7	63.0	23.6	6.7
Wet and Wild Water	2.0	77.3	13.1	3.3

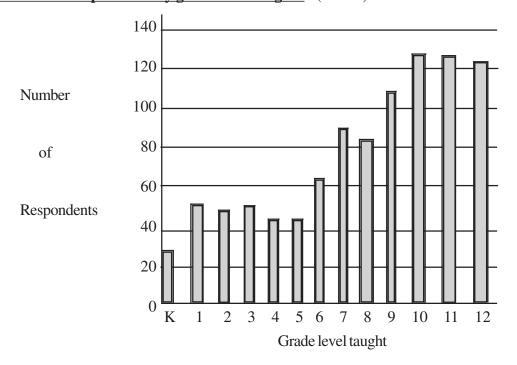
# Ranking of topics (from highest to lowest %) as they are addressed in the curriculum:

Minimally or not at all	In one subject	In two subjects	In several subjects
D (' '1 (71 0)	E (40.2)	E (20.0)	D 1' (22.4)
Pesticides (51.9)	Energy (40.3)	Energy (20.0)	Recycling (23.4)
Solid waste (52.1)	Water (38.5)	Wildlife (17.4)	End. Species (17.1)
Farming issues (47.2)	Recycling (35.9)	Recycling (16.3)	Wildlife (13.6)
Soil resources (44.8)	Haz. waste (35.9)	Population (15.1)	Population (12.7)
Mineral resources (44.5)	Air resources (35.9)	End. species (14.7)	Forest res. (11.4)
Air resources (43.2)	Forest res. (35.6)	Water res. (14.5)	Energy (10.9)
Haz. waste (41.9)	Nat. area pres. (35.0)	Forest res. (13.6)	Farming iss. (10.0)
Population (41.0)	End. Species (34.3)	Farming iss. (12.9)	Water res. (8.7)
Nat. area pres. (39.0)	Mineral res. (33.9)	Soil res. (12.7)	Nat. area pres. (8.5)
Forest issues (35.0)	Soil res. (32.7)	Nat. area pres. (12.5)	Air res. (7.6)
Water res. (34.3)	Wildlife res. (30.3)	Mineral res. (12.0)	Haz. waste (7.3)
Wildlife res. (34.1)	Pesticides (30.1)	Haz. waste (10.2)	Soil res. (6.2)
End. species (30.5)	Solid waste (29.8)	Air res. (8.2)	Solid waste (5.6)
Energy (24.9)	Population (26.9)	Solid waste (7.8)	Mineral res. (4.7)
Recycling (21.4)	Farming (25.8)	Pesticides (6.7)	Pesticides (4.7)

# **Breakdown of respondents by school location** (n=449)



# **Breakdown of respondents by grade level taught\*** (n=449)



<sup>\*</sup>many respondents teach more than one grade level

# **Environmental Education Office (proposed)**

Major strides have been made in the area of environmental education in Indiana during the last decade. More than 15% of schools within the state have outdoor laboratories in some stage of development; more than 30% of Indiana teachers are integrating environmental education into their teaching; about 40% are familiar with commonly used environmental education curriculum supplements. Several state, federal and private organizations have been working together since 1983 in a spirit of cooperation through the Indiana Conservation Education (ICE) working group to advance the cause of environmental education.

In spite of all these gains made and the interest shown by teachers, participation has been voluntary and random. The need for this comprehensive state environmental education plan became apparent. To implement this plan, it is in the public interest that current positions involved in environmental education be brought together in a central location. This environmental education office will lead efforts to develop a knowledgeable citizenry with the means necessary to solve existing environmental problems, prevent new ones and maintain a healthy environment and thriving economy for present and future generations. It must be emphasized that this office does not imply the creation of a new governmental agency; it is simply a gathering of existing positions into one common location. Agencies wishing to contribute staff and/or funding to support this office will do so on a voluntary basis, and will retain adminstrative control of any positions located there.

This initiative will enhance the quality of education for every student in Indiana schools. With the establishment of this office, Indiana will take its place among the states that are setting the standards for educational excellence.

#### Responsibilities of the Environmental Education Office

The primary duties of the Environmental Education Office (EEO) should include:

- 1. working to implement the state Environmental Education Plan;
- 2. monitoring trends and needs in environmental education and assisting with updating the state Plan;
- 3. serving as a liaison with educators and state, federal and private groups;
- 4. facilitating opportunities for pre-service and in-service training to educators, as well as continuing education opportunities for other specific groups;
- 5. serving as a clearinghouse which would:
  - A. review and recommend materials;
  - B. document, coordinate and promote successful environmental education approaches;
  - C. establish an electronic database and communications network.
- 6. coordinating recognition of outstanding environmental education efforts;
- 7. providing materials and financial resources to support environmental education efforts;
- 8. working with the Department of Education and school districts in developing and implementing curriculum;
- 9. assessing the status of environmental literacy in the state's students, teachers and citizens on a regular basis;
- 10. working with and assisting the Department of Education and colleges of education in modifying current teaching certification requirements by the year 2000 to include a required course in environmental education for all graduating teachers;
- 11. encouraging state government and the private sector to adopt policies that are consistent with the environmental education plan;
- 12. creating new and using existing recognition programs that support innovative or outstanding efforts in environmental education;
- 13. working with and assisting the Department of Education to establish guidelines for licensing existing educators with an environmental education endorsement based upon professional practices and accomplishments in environmental education.

## **Implementation**

The EEO will be an interagency office staffed by representatives from the Departments of Natural Resources, Education, and Environmental Management. Each individual will bring expertise from their respective agencies, while working cooperatively to accomplish the broader scope of environmental education. Administration of this office will be similar to other multi-agency offices (the Natural Resource Conservation Service, county Soil and Water Conservation Districts, and the Department of Natural Resources share some district offices), with specific details to be determined by the agencies involved. The Indiana Conservation Education (ICE) working group could serve this office in an advisory capacity.

# **Funding Mechanisms**

Gathering existing environmental education staff and programs in one common location will result in greater efficiency and improved public service. The successful functioning of this office will depend upon the continued financial support of each participating agency; however, for this office to achieve the goals outlined in this plan, an initial investment will be necessary. Funding mechanisms currently in use by states with exemplary environmental education programs are as follows (in descending order of frequency of use):

- 1. General fund
- 2. Automobile license fees
- 3. Solid waste fees
- 4. Donations and grants

Other mechanisms include severance taxes, tax form check-off, pollution fines, trust fund investments, auto fees such as air emissions and inspection stickers, dedicated fees, utility fees, taxes on alcohol and tobacco, and state lotteries.

# **Historical Perspective**

While efforts in conservation education were surely present in Indiana prior to the 1940's, it was not until 1946 that the first organized attempt to promote conservation education in schools occurred. The following background summarizes some significant events and dates in the history of conservation education in Indiana.

**1946**: "Conservation of Plants" and "Conservation of Water" were published by the Indiana Department of Public Instruction (now the Indiana Department of Education).

**1946**: A six week conservation education camp for teachers was sponsored by the Indiana Department of Conservation (now the Indiana Department of Natural Resources) and Purdue University and held at Versailles State Park. This resident camp continued through 1959, with more than 200 teachers attending through its 14 year history. This course continued on campus at Purdue from 1960 -70 as a summer non-resident class.

1947: "Conservation of Soil" and "Conservation of Wildlife" were published by the Indiana Department of Public Instruction.

1950: "Conservation of Fishes" was published by the Indiana Department of Conservation.

**1951**: Indiana leaders in conservation influenced legislators to pass a teacher education bill requiring 3 semester hours of conservation education for teachers of general and vocational agriculture, biology and home economics. This bill was later repealed.

1953: The National Conservation Education Association was founded during a conference at Purdue University.

1953: The Indiana Advisory Council to the Department of Public Instruction was appointed to study and make recommendations for conservation education as part of training for teachers. This group included representatives from elementary and high schools, school administrators, college faculty, the Indiana Department of Conservation and the Indiana Department of Public Instruction.

1956: The East Central States Conference in Conservation was established, which included Ohio, Michigan and Indiana.

**1957**: Indiana's governor appointed an advisory committee to the Indiana Department of Conservation for conservation education, composed of college faculty, an elementary school administrator, a representative from the Department of Conservation and one from the Indiana Department of Public Instruction.

**1959**: The Department of Conservation Advisory Committee published "Teaching Conservation In Indiana Schools", including a scope and sequence chart to help teachers integrate conservation education into the curriculum.

**1961**: The National Association of Interpretive Naturalists was organized during a conference at Bradford Woods in Martinsville, Indiana.

1964: Discussion began concerning the establishment of a statewide conservation education coordinator.

**1965-66**: The Department of Conservation became the Indiana Department of Natural Resources, and emphasis within that department on education was nearly eliminated. Also during this time, fund raising began through individuals and private organizations for a conservation education coordinator.

**1967**: A commitment was made by the Superintendent of the Department of Public Instruction to hire a conservation education coordinator and pursue legislative funding if the initial salary could be raised through donations.

1968: With more than 100 donors contributing a total of about \$7,000, the position of Conservation Education Consultant was established in the Department of Public Instruction. The original advisory committe to this department was terminated in December, and responsibility for conservation education fell solely upon the Department of Public Instruction.

**1969**: The Conservation-Outdoor Education Association of Indiana was founded. The East Central States Conference officially disbanded because each of the states involved now had their own state organization.

1970: The first annual meeting of the Conservation-Outdoor Education Association was held.

1971: A task force was appointed by the Superintendent of Public Instruction to prepare a State Environmental Education Plan. Through error, the Governor apparently did not receive an official copy. It was sent to Washington without his signature, where it was discarded.

1974: The U.S. Youth Conservation Corps, a work-study program that employed 15-18 year old youths, began in Indiana as a pilot project, sponsored and directed by the Department of Natural Resources-Division of Forestry. While this was not directly related to statewide efforts in environmental education, the program initiated and funded development of many school outdoor laboratories. A federally funded Youth Conservation Corps state grant program developed in 1977 and was funded through 1981.

**1975**: The Governor appointed the Indiana Council on Environmental Education to develop another state plan. A plan was formulated but never implemented due to lack of funding.

1976: An environmental education teaching minor was approved by the Indiana Teacher Training and Licensing Commission.

1977: An environmental education teaching minor was approved by the Indiana Commission of Higher Education.

1978: First employee hired by a county Soil and Water Conservation District to work with school on conservation education began work in Marion county.

1979: The Department of Public Instruction's Environmental Education Consultant position was terminated. The incumbent was reassigned as Energy Consultant. The Conservation-Outdoor Education Association of Indiana's name was changed to the Environmental Education Association of Indiana, reflecting a change in philosophy toward teaching about the total environment and ecological relationships rather than strictly conservation. This organization has continued to grow and have considerable impact on environmental education throughout the state.

**1981**: The Department of Natural Resources-Division of Forestry's Youth Conservation Corps Director was reassigned as Education Specialist. The Department of Public Instruction's Energy Consultant was reassigned as Environmental Science Consultant.

1983: Indiana Conservation Education working group was established. This group originated from a meeting of about 20 organizations, both public and private, that shared an interest in seeing conservation education integrated into the curriculum of Indiana schools. The smaller working group was formed to serve as a forum for ideas on how to promote environmental education and as a means for organizations to work together on projects of common interest. Since 1983, the Indiana Conservation Education working group has met on a regular basis about six times per year and has a long list of accomplishments.

1984: The Department of Public Instruction became the Department of Education.

**1985**: A second Education Specialist was employed by the Department of Natural Resources-Division of Forestry. Later in 1985, Indiana became the 40th state to introduce the Project Learning Tree program, and this position was designated as the Project Learning Tree state coordinator. (Project Learning Tree is a K-12 interdisciplinary environmental education curricular supplement that focuses on the forest ecosystem.)

Also in 1985, the Department of Natural Resources-Division of Fish & Wildlife employed its first education specialist as Indiana's Project WILD coordinator. (Project WILD is a K-12 interdisciplinary environmental education curricular supplement that focuses on wildlife.)

**1986**: The Department of Natural Resources hosted a week-long resident conservation education camp for teachers at the Future Farmers of America Leadership Center in Trafalgar. This annual event has continued since that time, with financial sponsorship of teachers provided by county Soil and Water Conservation Districts, the Environmental Education Association of Indiana, and the Indiana Wildlife Federation.

**1990**: The National Environmental Education Act was passed, designating responsibilities and appropriating funding to the U.S. Environmental Protection Agency and the U.S. Office of Education for promoting certain aspects of environmental education. That same year, legislation in Indiana expanded the role of the Department of Environmental Management to include certain aspects of environmental education.

1991: The Environmental Education Association of Indiana became an affiliate with the North American Association for Environmental Education.

1992: Some Indiana high schools participated in the state's first Envirothon competition, and one school participated in the national finals. Envirothon is a nationwide competition between teams of high school students who test their knowledge about natural resources and the environment against teams from other schools. (An Indiana team from Rossville won the national championship in 1993.) Also in 1992, Indiana hosted a Governor's Conference on the Environment, which included an environmental conference for children. (This conference format was repeated in 1993 and 1994.) Later in 1992, the U.S. Forest Service, in cooperation with the National Association of State Foresters, initiated the Natural Resource Conservation Education (NRCE) program. Through NRCE, funding is provided to states to develop environmental education implementation plans and for a variety of conservation education projects.

**1994**: The Environmental Education Association of Indiana became regionally affiliated with the Midwest Environmental Education Conference.

1995: Indiana hosted its first Youth Environmental Summit, an event designed to bring together children from throughout the state to learn about environmental issues and appropriate action

#### APPENDIX 5

# A National Perspective on Environmental Education

According to the National Environmental Education Advancement Project, a comprehensive state-level environmental education program will contain the following structural components: an advisory board or council, an interagency committee, a coordinator and staff, state and regional centers, and the support of grassroots associations. While at least 30 states have some of these components, only a handful have developed all or most of them. These states include Arizona, Florida, Maryland, Minnesota, Pennsylvania and Wisconsin. States with environmental education associations or coalitions that are actively working to further environmental education in their states include California, Colorado, Hawaii, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Missouri, North Carolina, Oklahoma, Oregon, South Dakota, Tennessee, Texas, Washington and Wyoming. States which have or are developing, comprehensive environmental education implementation plans similar to this document include Arizona, Colorado, Hawaii, Illinois, Minnesota, Missouri, North Carolina and Wisconsin.

As of 1993, 19 states had legislation either mandating or recommending environmental education. This is accomplished in most states through curriculum guidelines. In addition, three states (Arizona, Maryland and Wisconsin) require pre-service environmental education training for teachers.

Roughly half of all state environmental education programs are advised by a board, an interagency committee, or both. There are six states having regional environmental education centers with libraries, computer networks, training opportunities and other amenities for teachers. According to the 1993 report "State-by-State Overview of Environmental Education Standards" by the Environmental Education Associations, Inc., 29 states (including Indiana) have full time positions dealing with environmental education. Education agencies hosted 16 of these positions, while 13 were housed in natural resource agencies. There were five states employing two full time specialists and seven states with half time positions. For 21 of the 29 states, coordinating environmental education was only a portion of the job responsibilities of the individuals involved.

Trust funds for environmental education have been established in nine states--Arizona, Arkansas, California, Florida, Iowa, Maryland, Missouri, Ohio, Pennsylvania and Wisconsin. All of these states except Arkansas and Missouri offer competitive challenge grants and incentives to innovative environmental education programs in their states. The Indiana Department of Environmental Management and the Department of Natural Resources both offer grant funding for environmental education.

More detailed information and statistics on environmental education programs throughout the United States can be obtained by contacting the National Environmental Education Advancement Project, College of Natural Resources, University of Wisconsin-Stevens Point, Stevens Point, WI 54481.

Inquiries regarding this plan may be directed to:

Sam Carman, ICE Chairman c/o Indiana Department of Natural Resources Division of Forestry 402 W. Washington, Rm. W296 Indianapolis, IN 46204 Phone - 317 / 232-4105 FAX - 317 / 233-3863

COMPREHENSIVE ENVIRONMENTAL EDUCATION IMPLEMENTATION PLAN FOR INDIANA

Developed by;

The Indiana Conservation Education Working Group 1996